

## Rapid Assessment Reference Condition Model

The Rapid Assessment is a component of the LANDFIRE project. Reference condition models for the Rapid Assessment were created through a series of expert workshops and a peer-review process in 2004-2005. For more information, please visit [www.landfire.gov](http://www.landfire.gov). Please direct questions to [helpdesk@landfire.gov](mailto:helpdesk@landfire.gov).

### Potential Natural Vegetation Group (PNVG):

R3ASPN

Stable Aspen without Conifers

### General Information

**Contributors** (additional contributors may be listed under "Model Evolution and Comments")

#### Modelers

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#### Vegetation Type

Forested

#### Dominant Species\*

POTR5  
SYOR2

#### General Model Sources

- Literature  
 Local Data  
 Expert Estimate

#### LANDFIRE Mapping Zones

14	24	28
15	25	
23	27	

#### Rapid Assessment Model Zones

- |   |   |
|---|---|
| <input type="checkbox"/> California             | <input type="checkbox"/> Pacific Northwest    |
| <input checked="" type="checkbox"/> Great Basin | <input type="checkbox"/> South Central        |
| <input type="checkbox"/> Great Lakes            | <input type="checkbox"/> Southeast            |
| <input type="checkbox"/> Northeast              | <input type="checkbox"/> S. Appalachians      |
| <input type="checkbox"/> Northern Plains        | <input checked="" type="checkbox"/> Southwest |
| <input type="checkbox"/> N-Cent. Rockies        |   |

#### Geographic Range

Western Colorado, Utah, northern New Mexico, northern Arizona, central Nevada.

#### Biophysical Site Description

This type occurs on flat to moderately steep terrain (<50%) on all aspects. Elevation typically ranges from 5000 to 11000 ft. Stable aspen typically occurs above P/J. Soils are generally deep, mollic, cool, and moist. As a species, aspen is adapted to a much broader range of environments than most plants found associated with it.

#### Vegetation Description

Aspen exists in single-storied or more commonly multi-storied stands. Conifers are not generally present in this type.

Understory consists of an abundant herbaceous component, perhaps with snowberry (*Symphoricarpos* sp.), meadow rue (*Thalictrum fendleri*) and/or yarrow (*Achillea millefolium*) present. Aspen suckers 5-15' tall will be present in all classes at least 500 stems/acre. Lack of suckers is representative of an uncharacteristic class. Another uncharacteristic class is indicated if sagebrush cover is over 10% (in Utah).

#### Disturbance Description

Fire behavior in aspen stands is often viewed as surface fire, but may in fact result in fire effects that are mixed, as defined for LANDFIRE (i.e., 25-75% top kill). Fires were modeled here as replacement and surface. Replacement fires probably occurred with an approximate rotation of 150 years (Romme et al. 2001). Surface fires (causing <25% top-kill) were relatively rare and are more likely in late-development conditions, though exact frequencies are unknown.

Insects and pathogens may cause stand-replacement disturbances, increasing in likelihood as stands age.

\*Dominant and Indicator Species are from the NRCS PLANTS database. To check a species code, please visit <http://plants.usda.gov>.

## Adjacency or Identification Concerns

If conifers are present, please review R3ASMCC, R3MCONcm and R3MCONwd as options. Stable stands appear to occur more often at lower elevations compared to seral stands. Adjacent forest types such as ponderosa pine or warm/dry mixed conifer with more frequent fire may influence fire frequency in stable aspen to facilitate regeneration.

Aspen may be declining in parts of the southwest, and appears most critical in Utah, Arizona, and New Mexico, but not in Colorado (especially not in southwestern Colorado).

This PNVG is similar to the PNVG R2ASPN for the Great Basin model zone, but fire severities differ.

## Scale Description

Sources of Scale Data  Literature  Local Data  Expert Estimate

Patch sizes range in the 10s to 100s of acres.

## Issues/Problems

Aspen stands tend to remain dense throughout most of the lifespan, hence the open stand descriptions were not used. These are typically self-perpetuating stands, they may not need regular disturbance to regenerate. As aspen is such a wide-ranging species, there are not dominant understory species which assist in identification of this type. Either there aren't conifers (this PNVG) or there are, which would indicate another PNVG. There are surface fires which burn small areas throughout these stands. They do not set succession back.

## Model Evolution and Comments

Peer review resulted in eliminating mixed severity fire from this type (originally modeled at 215-year MFI). This caused no change in the percent in each class A-C, but changed the overall MFI of the model from 75 years to 122 years. Quality control also eliminated a rule violation (use of Relative Age for C to C mixed severity fire) with no change to results.

## Succession Classes

Succession classes are the equivalent of "Vegetation Fuel Classes" as defined in the Interagency FRCC Guidebook ([www.frcc.gov](http://www.frcc.gov)).

### Class A 10%

Early1 PostRep

#### Description

Aspen suckers less than 6' tall.  
Grass and forbs present.

#### Indicator Species\* and Canopy Position

POTR5

#### Structure Data (for upper layer lifeform)

	Min	Max
Cover	50 %	100 %
Height	no data	no data
Tree Size Class	no data	

#### Upper Layer Lifeform

- Herbaceous  
 Shrub  
 Tree

Upper layer lifeform differs from dominant lifeform.  
Height and cover of dominant lifeform are:

**Fuel Model** no data

\*Dominant and Indicator Species are from the NRCS PLANTS database. To check a species code, please visit <http://plants.usda.gov>.

**Class B 55%**

Mid1 Closed

**Description**

Aspen over 6' tall dominate.  
Canopy cover highly variable.

**Indicator Species\* and Canopy Position**

POTR5

**Upper Layer Lifeform**

- Herbaceous
- Shrub
- Tree

**Fuel Model** no data

**Structure Data (for upper layer lifeform)**

	Min	Max
Cover	40 %	100 %
Height	no data	no data
Tree Size Class	no data	

Upper layer lifeform differs from dominant lifeform.  
Height and cover of dominant lifeform are:

**Class C 35%**

Late1 All Structures

**Description**

Aspen trees 5 - 16in DBH. Canopy cover is highly variable

**Indicator Species\* and Canopy Position**

POTR5

**Upper Layer Lifeform**

- Herbaceous
- Shrub
- Tree

**Fuel Model** no data

**Structure Data (for upper layer lifeform)**

	Min	Max
Cover	40 %	100 %
Height	no data	no data
Tree Size Class	no data	

Upper layer lifeform differs from dominant lifeform.  
Height and cover of dominant lifeform are:

**Class D 0%**

Late1 Open

**Description**

**Indicator Species\* and Canopy Position**

**Structure Data (for upper layer lifeform)**

	Min	Max
Cover	0 %	%
Height	no data	no data
Tree Size Class	no data	

**Upper Layer Lifeform**

- Herbaceous
- Shrub
- Tree

**Fuel Model** no data

Upper layer lifeform differs from dominant lifeform.  
Height and cover of dominant lifeform are:

**Class E 0%**

Late1 Closed

**Description**

**Indicator Species\* and Canopy Position**

**Structure Data (for upper layer lifeform)**

	Min	Max
Cover	0 %	0 %
Height	no data	no data
Tree Size Class	no data	

\*Dominant and Indicator Species are from the NRCS PLANTS database. To check a species code, please visit <http://plants.usda.gov>.

**Upper Layer Lifeform** Upper layer lifeform differs from dominant lifeform.  
Height and cover of dominant lifeform are:

- Herbaceous  
 Shrub  
 Tree

**Fuel Model** no data**Disturbances****Non-Fire Disturbances Modeled**

- Insects/Disease  
 Wind/Weather/Stress  
 Native Grazing  
 Competition  
 Other:  
 Other:

**Fire Regime Group: 4**

- I: 0-35 year frequency, low and mixed severity  
 II: 0-35 year frequency, replacement severity  
 III: 35-200 year frequency, low and mixed severity  
 IV: 35-200 year frequency, replacement severity  
 V: 200+ year frequency, replacement severity

**Historical Fire Size (acres)**

Avg:  
 Min:  
 Max:

**Fire Intervals (FI):**

Fire interval is expressed in years for each fire severity class and for all types of fire combined (All Fires). Average FI is the central tendency modeled. Minimum and maximum show the relative range of fire intervals, if known. Probability is the inverse of fire interval in years and is used in reference condition modeling. Percent of all fires is the percent of all fires in that severity class. All values are estimates and not precise.

**Sources of Fire Regime Data**

- Literature  
 Local Data  
 Expert Estimate

	Avg FI	Min FI	Max FI	Probability	Percent of All Fires
<i>Replacement</i>	150	50	300	0.00667	81
<i>Mixed</i>					
<i>Surface</i>	650	600	2000	0.00154	19
<i>All Fires</i>	122			0.00822	

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